Photo-induced characteristics of azobenzene based gold nanoparticles

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The azobenzene based gold nanomaterials was synthesised through Au-S bonding between thiol substituted azobenzene derivatives with gold nanomaterials core. The structures of the compounds were elucidated by nuclear magnetic resonance, IR, transmission electron microscopy and UV-Vis spectroscopic techniques. The photoisomerisation effect was investigated for the synthesised compounds using the absorption studies. The photosaturation was occurred at ∼24 s and back relaxation was found at ∼315 min. The sterical hindrance developed by the multiple attachments of azobenzene molecules to the central gold nanoparticle core is the reason for the lengthening of photo-switching time duration. This study gives good information about the light induced characters of azobenzene based gold nanoparticles.